

CALYSTEGIA (CONVOLVULACEAE) IN TEXAS

All past Texas floristic works have identified either a single *Calystegia* species, *C. sepium* (L.) R. Br., or at most, two species in the state *C. sepium* and *C. silvatica* (Kit.) Griseb. (e.g., Correll & Johnston 1970; Hatch et al. 1990; Jones et al. 1997). When we recently examined specimens at BRIT for the forthcoming *Shinners & Mahlers Illustrated Flora of North Central Texas* (Diggs et al.), we discovered that there actually were three species, the third being *C. macounii* (Greene) Brummitt. Although there has been marked confusion and misinterpretation of *Calystegia* species in the past (e.g., Tryon 1939), the proper delimitation and names for North American taxa were provided by Brummitt (1965, 1980). Few students of Great Plains plants other than Austin (1986, 1992a) have recognized these three taxa. Other authors have continued an incorrect usage that masked actual biodiversity (e.g., Taylor & Taylor 1989, 1994; Hatch et al. 1990; Jones et al. 1997).

In this note we wish to record the data we have on these species for future students of the region. Details on one or more of these species are also available for the Intermountain region (Holmgren 1984), New Mexico (Austin 1990) and Arizona (Austin 1991). While these taxa differ by what seem to be trivial characters on herbarium specimens, they are more distinctive when alive, have different ecological preferences, and historically occupied somewhat different geographic regions. The following key is modified from Austin (1986).

1. Leaf sinus quadrate (= nearly square); blade tissues not beginning for 2–5 (–10) mm from petiole attachment (only vascular tissue near attachment) *C. silvatica* subsp. *fraterniflora*
1. Leaf sinus V- or U-shaped; blade tissues beginning at the point of petiole attachment.
 2. Basal lobes of leaf blades with 1–2 small, tooth-like angles; plants normally glabrous or with a few trichomes on petioles *C. sepium* subsp. *angulata*
 2. Basal lobes of leaf blades rounded; plants normally pubescent on all vegetative parts.
 3. Plants twining throughout; leaf blades narrow (mostly 3:1 length to width ratio) *C. sepium* subsp. *limnophila*
 3. Plants semi-erect or sparsely twining; leaf blades broad (mostly 2:1 length to width ratio) *C. macounii*

Calystegia macounii (Greene) Brummitt, Ann. Missouri Bot. Gard. 52:215. 1965. BASIONYM: *Convolvulus macounii* Greene, Pittonia 3:331. 1898. TYPE: CANADA. SASKATCHEWAN: Assiniboia, Milk River, Aug 1895, *John Macoun 11883* (HOLOTYPE: ND; ISOTYPE: BM).

The semi-erect habit and strongly inflated floral bracts make *C. macounii* distinctive. Parker (1972, Fig. 111B p. 233) incorrectly illustrated this species as *C. sepium*. So far as known, that is the only published drawing of

C. macounii. This is a Plains species that is distributed from Canada to western Minnesota and south to Texas, New Mexico and Arizona. Probably the plants were spread westward along logging railroads across New Mexico and Arizona. Because so few people have identified the species, little of its ecological preferences are known. However, *C. macounii* is typically associated with moist sandy soils near waterways in open grasslands or openings in woodlands. Also, this is the first species to flower in the spring, usually in May and June. Although flowering periods overlap, this species is often in fruit by the time the others begin to flower.

TEXAS. Cooke Co.: Silty bank, above small stream, limestone area, 8.8 mi W of Gainesville, 13 May 1951, *L.H. Shimmers 13256* (BRIT-SMU).

***Calystegia sepium* (L.) R. Br. subsp. *limnophila* (Greene) Brummitt, Ann. Missouri Bot. Gard. 52:216. 1965.** BASIONYM: *Convolvulus limnophilus* Greene, Pittonia 3:29. 1898. TYPE: CALIFORNIA. Suisun Marsh, Aug 1883, *E.L. Greene 39709* (SYNTYPE: ND fide Brummitt, cf. Austin 1992b). *Convolvulus repens* L., Sp. Pl. 158. 1753. TYPE: specimen 218.55 in herb. Linnaeus (LINN, not seen; microfiche seen). *Calystegia sepium* var. *repens* (L.) A. Gray, Syn. Fl. N. Amer. 2(1):215. 1878. (cf. Tryon 1939; Correll & Johnston 1970: 1247). *Convolvulus nashii* House, Muhlenbergia 5:66. 1909. TYPE: FLORIDA. LAKE CO.: Eustis, *Nash 609* (HOLOTYPE: Columbia Univ., not seen; ISOTYPE: NY).

The leaf blades abruptly narrowed (mostly 1–2 cm wide) above the exaggerated sagittate bases make this subspecies distinctive. Rarer specimens (e.g., *Boon 130* & *Webster 487*) have leaves wider than this but usually still have the flared sagittate bases making them identifiable. This is a wetland species that ranges from Florida to California across the southern USA and even into northern Mexico.

TEXAS. Aransas Co.: N of Fulton, 10 Jun 1960, *F. Jones 4086* (TEX). Galveston Co.: Park on F.M. 517 (Bayshore Drive) S of Bacliff, 10 May 1976, *F. Waller 3810* (TEX). Harris Co.: 5 mi NW of LaPorte, 24 Jul 1943, *E. Boon 130* (TEX). Jefferson Co.: Beaumont, 9 Apr 1924, *B. Thayer? 3163* (TEX). Orange Co.: Port of Orange, 27 Jun 1967, *D. Correll 34279* (LL). Terrell Co.: 7 mi upstream from jct. of Independence Creek & Pecos River. 5–6 Jul 1949, *G. Webster 487* (TEX).

***Calystegia sepium* (L.) R. Br. subsp. *angulata* Brummitt, Kew Bull. 35:328. 1980.** TYPE: IDAHO. CANYON CO.: Falks Store, 28 Jun 1910, *Macbride 318* (HOLOTYPE: MO; ISOTYPES: GH, NY, US).

Both *C. sepium* and *C. silvatica* are climbing or twining plants. Although the floral bracts are inflated in *C. silvatica*, its habit and leaf characters are different from those of *C. macounii*. Leaf characters, as noted in the key, distinguish *C. sepium* from *C. silvatica*. *Calystegia sepium* subsp. *angulata* belongs to a disturbingly variable complex that has probably been properly segregated into taxa by Brummitt (1965, 1980). Unhappily, Brummitt

has never published a full account of how to distinguish the varieties and it is known that some intergrade (Brummitt 1980). Subspecies *angulata* is native from New Brunswick to British Columbia in Canada and south to Washington, Oregon, Idaho, Utah, New Mexico, Texas and South Carolina in the U.S.A. (cf., Brummitt 1980 for specimen citation). This is a woodland and forest taxon typically confined to openings and glades; it usually flowers between June and August.

TEXAS. Jefferson Co.: ca. 8.5 mi W of Sabine Pass, from a sand dune area near the beach, 24 May 1973, *J. Taylor & C. Taylor 13242* (BRIT-SMU).

***Calystegia silvatica* (Kit.) Griseb. subsp. *fraterniflora* (Mack. & Bush.)** Brummitt, *Ann. Missouri Bot. Gard.* 52:216. 1965. BASIONYM: *Convolvulus sepium* (L.) R. Br. var. *fraterniflorus* Mack. & Bush, *Man. Fl. Jackson Co. Missouri* 153. 1902. TYPE: U.S.A. MISSOURI: Martin City, 9 Jul 1899, *Mackenzie & Bush s.n.* (not traced; TOPOTYPE, 28 Jun 1905, *Bush 3037* (GH, MO)).

The quadrate sinus in the leaf blade base is the easiest way to recognize *Calystegia silvatica* subsp. *fraterniflora*. This North American subspecies, related to the Old World *C. silvatica* subsp. *silvatica*, is native from New Hampshire to Kansas and Florida to Oklahoma and Texas. Within that region it typically occurs along stream margins on sandy soils in deciduous forests. This species has the longest flowering season of the three, often going from May to September.

TEXAS. Anderson Co.: E of Palestine, 2 Oct 1965, *D. Correll & H. Correll 31748* (LL). Chambers Co.: rare along brackish marsh in the Anahuac National Wildlife Refuge, S of Anahuac and on shore of Galveston Bay, 5 Jun 1987, *L.E. Brown 11155* (BRIT). Ochiltree Co.: bank of Wolf Creek, 12 mi SE of Perryton on US 83 & 5 mi E of hwy., 13 Jul 1957, *C. Wallis 4849* (SMU). Potter Co.: Palo Duro Cañon-Harding Road. 15 Jun 1929, *B. Tharp 6289* (TEX).

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